

mazore

distance under control

Trading Ltd

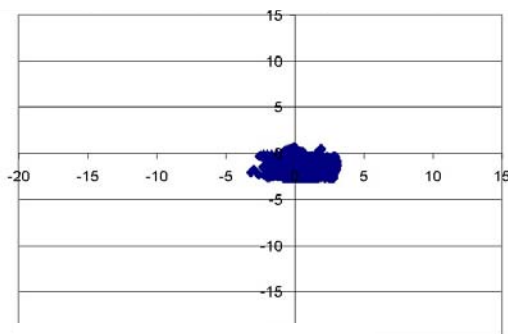
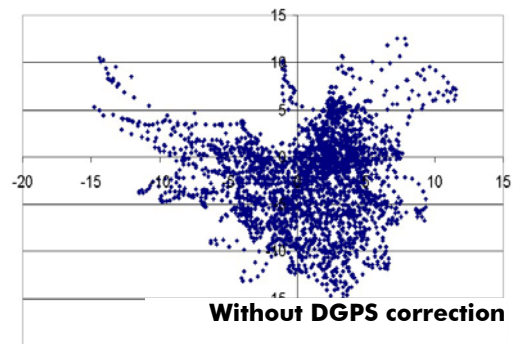
DGPS-enabler Version 1.4

DGPS Server for Accurate GPS Positions

The number of applications that need GPS co-ordinates which are more accurate than standard GPS is constantly growing.

The DGPS-enabler improves the accuracy of the GPS co-ordinates approx. 5 to 10 times at very low cost.

Typical accuracy is 1-3 meters compared with 12-50 meters with normal GPS.



With DGPS correction

The DGPS-enabler is available in three versions:

- Web-Service to be used without any need of hardware or software licenses
- Onsite package: Software license including all necessary hardware to be installed along with the server of the client to run an own reference station
- Hardware to be installed in a vehicle for extremely fast and very reliable onboard correction. The correctional data is received over the air.

All locate units support DGPS.

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Feature List of the DGPS-enabler Web Service

- The DGPS-enabler Web Service allows access to the correctional DGPS information from every internet-enabled PC quite easily with the help of HTTP requests and the transmission of typical internet XML data structures. This can be used to correct GPS information coming from the locate units at a later stage e.g. for billing purposes. It can also be used to transfer the information to an onboard unit of the locate series for local correction of the data (e.g. for in car decisions depending on DGPS information).
- The DGPS-enabler stores all correctional data of the last twelve months for later use.
- The DGPS data is provided for free. Just the usage of the DGPS-enabler WEB service has to be paid.
- The data being provided by the DGPS-enabler Web Service can be used for vehicles which are in a distance of up to 3.000 kilometers from Frankfurt (Germany).

Feature List of the DGPS Onsite Package

The DGPS-enabler onsite package consists of the following components:

- The necessary hardware to generate correctional data in the area of the client. The hardware can be used all over the world.
- A server based software that stores the correctional data in a database on a PC.
- A DGPS library for all type of the locate series to transfer the DGPS information using GPRS to the on board units for local use in the vehicle.

Feature List of the DGPS Onboard Unit

The DGPS-enabler Onboard Unit is an add on to the units of the locate series that receives correctional DGPS information in a vehicle over the air and forwards it for further processing to the locate device.

The details of the unit depend on the country you want to use it and on the source of the correctional signal (VHF, UHF etc.)

DGPS Background Information

Using DGPS, not one single GPS receiver is used but two. One of these receivers is the normal GPS receiver in the vehicle, the other one is a fixed mounted unit (e.g. in a building) called 'reference receiver'.

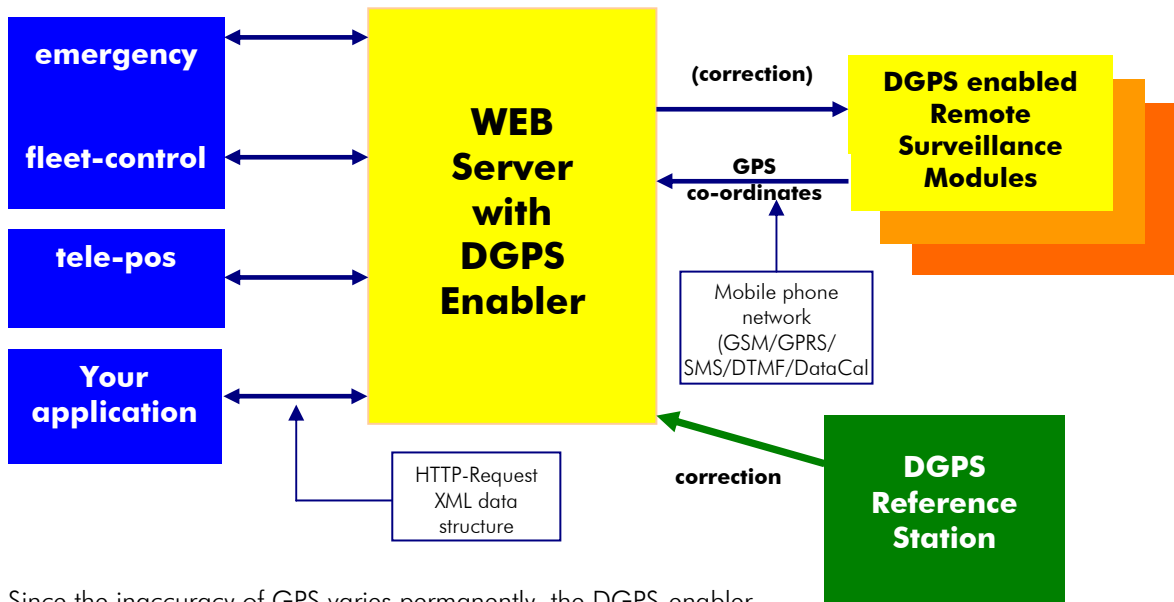
The co-ordinate where the reference receiver is mounted has to be very well measured once during the installation of the reference receiver.

If the reference receiver receives a co-ordinate from the GPS satellites (which is inaccurate), then the reference receiver compares this co-ordinate with his own coordinate which had been determined during its installation very exact.

Then the reference receiver calculates the vector (distance and direction) between the true position of the reference receiver and the position that was recently reported by the GPS system.

This vector is then transmitted either to the normal receiver or to the server, to which the normal receiver sends its (inaccurate) co-ordinates also.

In either the normal receiver or in the server, the co-ordinate that was measured by the normal GPS receiver is then corrected by adding the vector that was calculated by the reference receiver to the co-ordinate of the normal receiver.



Since the inaccuracy of GPS varies permanently, the DGPS-enabler stores a correction vector every two seconds including a time stamp.

The co-ordinates coming from the locate remote control units also include a time stamp so that it is possible to correct the GPS position of a given vehicle at a given time immediately or later, when the information is processed (e.g. during the billing).

Quite often DGPS reference stations are provided by bigger institutions which are also responsible for the transmission of the correctional signal.

You can use one of these sources of the signal or you can setup your own reference station. This is inexpensive since you just need one of the locate units, a very accurate position to mount it (in most of the cases you can get the accurate position of your house from your local geo institute) and a standard PC to receive the data and to store it including the DGPS enabler software that provides access to the data.

Products

Product	Part No.	Description	Price
DGPS-enabler web service	DGP-03-13	License to support one locate unit with DGPS data. The data is provided by German Telekom. The reference station is located close to Frankfurt (Main). The accuracy of the data decreases by approx. 1m per 1.000 km distance from Frankfurt. The License for the access to the data of German Telekom is included in this price.	49,-- Euro per month
DGPS-enabler onsite package	DGP-03-01	Complete software and hardware package for an own DGPS reference station including <ul style="list-style-type: none"> ➤ Full featured software license of the DGPS-enabler ➤ 10 objects to be supported with DGPS ➤ 1 locate-28 module ➤ 1 combined GPS/GSM antenna (3m) ➤ 1 serial cable (3m) to connect the unit to a PC ➤ Tower PC with 2x120 GB, Raid 1, Linux, serial interface for locate-28 	2.990,-- Euro (1.990,-- Euro without hardware)
DGPS-enabler installation	DGP-03-02	Installation of the software on a Linux server with a fixed IP address and remote access. (Precondition for us to service the system) The hardware installation must be done by the customer	1.490,-- Euro
DGPS-enabler object license	DGP-03-03	Extension of the software for another object to be placed under surveillance	19,-- Euro
DGPS-enabler support	DGP-03-07	24h remote service for the server including all software updates. The administration of the system is not included in the price and is normally carried out by the user. Price per object.	29,-- Euro per month
DGPS-enabler PDA connection	DGP-03-08	Software module (VPL) for the remote surveillance units to receive DGPS data and to provide the corrected information at the serial interface of the remote control unit (NMEA format)	990,-- Euro
DGPS-enabler onboard unit	DGP-03-28	Hardware module including antenna and power supply to be mounted in a vehicle to provide DGPS correctional data in a vehicle without any costs for sending the information over GSM to the vehicle. The data is transmitted free of charge using radio stations or other networks. Please check, which companies in your country provides such a signal. We will try to provide an interface between this unit and a locate module being mounted in the vehicle.	On demand